Work Plan and Methodology

In the proposed work, microstrip filters meeting the requirement of wireless communication will be designed and analysed using Defected Ground structure. The work plan and methodology for this purpose is as follows:

STEP 1. Study of Research papers on Microstrip filters using Defected Ground Structure.

STEP 2. Designing of Microstrip filter Using Defected Ground Structure using commercially available Software HFSS.

The outline of the steps in designing Microstrip filter using HFSS (High Frequency Structured Simulator) is as under:

- The first step in simulating a structure in HFSS requires the definition of the geometry of the structure by giving the material properties and boundaries for ground, dielectric and microstrip available in HFSS window.
- The next step is to draw the desired DGS structure using the tools available in the software.
- The designed structure is excited using the suitable port excitation schemes.
- The next step involves the assigning of the boundary scheme. A radiation boundary with vacuum is commonly used for radiating structure.
- Setup solution information
- Analysis

STEP 3. Observing the results of microstrip filter and improving further using various shapes.

STEP 4. Fabrication of the Simulated microstrip Filter.

STEP 5. Finally testing the fabricated filter to verify the result.

As a whole study and methodology would be dealt in the following modules:

- Theoretical discussion and study of the research papers.
- Selection of the shape of defected ground structure and calculation of its parameters like length, width etc.

- The analysis of designed filter using the commercially available software HFSS. The filter will be optimized for the desired characteristics like insertion loss, return loss, sharpness, quality factor etc.
- Fabricate the filter on low cost commercially available substrate. The filter will be fabricated using the standard photolithography and etching techniques. The developed filter will be tested for its various characteristics.
- Summary of the conclusion, imitations and scope for further extension of the study.
- References